

ABSTRACT OF THE DISCLOSURE

In a manufacturing method of a thin-film transistor having a polycrystalline Si film as its active region, an amorphous-phase Si film is first formed, and pulse laser beams are irradiated to crystallize the Si film and thereby form a polycrystalline Si film. After electrodes are made on a source region and a drain region, a  $\text{SiN}_x$  film as a hydrogen-containing film is formed on the entire surface. By irradiating pulse laser beams to heat the  $\text{SiN}_x$  film, hydrogen in the  $\text{SiN}_x$  film is diffused into the polycrystalline Si film to hydrogenate it and reduce the trap density along crystal grain boundaries in the polycrystalline Si film.